UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,067	06/30/2003	Boris Ginzburg	P-5760-US	7827

49444   7590   07/02/2007
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EXAMINER
PHAN, TRI H

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
07/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**
Office Action Summary	10/608,067	GINZBURG ET AL.
	Examiner	**Art Unit**	
	Tri H. Phan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 June 2003_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-44_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _1-7, 9-15 and 17-44_ is/are rejected.

7)☒ Claim(s) _8 and 16_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date. .

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status

1.   This Office Action is in response to the communication(s) filed on June 30th, 2003.

Claims 1-44 are now pending in the application.

Information Disclosure Statement

2.   The application no. 10/668,173 listing of information disclosure statement (IDS)

submitted on July 14th, 2004 is not a proper information disclosure statement. 37 CFR 1.98(b)

requires a list of all patents, publications, or other information which caused it to be listed

submitted for consideration by the Office. However, this information is being considered by the

examiner.

Claim Objections

3.   Claims 6, 9, 14, 16-17, 21-23, 29-30, 40 and 42-43 are objected to because of the

following informalities:

       - in claim 6, line 2, the limitation "the network load" should be changed to -- a network

load -- to avoid lack of antecedent basis.

       - in claim 9, line 2, "the network load" should be changed to -- a network load -- to avoid

lack of antecedent basis.

       - in claim 14, line 2, "the network load" should be changed to -- a network load -- to

avoid lack of antecedent basis.

- in claim 16, line 4, the limitation "based the comparison" should be correct to -- based on the comparison --.

- in claim 17, line 2, "the network load" should be changed to -- a network load -- to avoid lack of antecedent basis.

- in claim 21,

line 1, "the calculator" should be changed to -- a calculator --;

line 3, "the throughput loss parameter" should be changed to -- a throughput loss parameter -- to avoid lack of antecedent basis.

- in claim 22, line 2, "the network load" should be changed to -- a network load -- to avoid lack of antecedent basis.

- in claim 23, lines 1-2, the word "a" after "is able to" should be deleted for clarity.

- in claim 29,

line 1, "the calculator" should be changed to -- a calculator --;

line 2, "the collision probability parameter" should be changed to -- a collision probability parameter --;

line 3, "the throughput loss parameter" should be changed to -- a throughput loss parameter -- to avoid lack of antecedent basis.

- in claim 30, line 2, "the network load" should be changed to -- a network load -- to avoid lack of antecedent basis.

- in claim 40, lines 1-2, the limitations "*a storage medium, having stored thereon instructions, that when executed...*" should be changed to -- a computer readable medium, having

stored thereon instructions, that when executed <u>by computer</u>, ... --; since, according to MPEP

§ 2106, instructions must be executed by computer.

- in claim 42, line 2, "the throughput loss parameter" should be changed to -- a

throughput loss parameter -- to avoid lack of antecedent basis.

- in claim 43, line 3, "the network load" should be changed to -- a network load -- to

avoid lack of antecedent basis.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 2-9 and 11-17 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

- Regarding claim 2, it is not clear how the "*calculating*" step is performed

chronologically with respect to the step "*selecting*" of claim 1.

As to claims 2-9, steps such as "*collecting*", "*estimating*", "*adjusting*", "*calculating*", and

"*comparing*" (see claims 2-9); it is not clear, in what order each of the step is performed with

respect to the other steps recited in the claim that it depends from. The claims are written in such

a way that the steps are performed in a manner not clearly corresponded to the order as disclosed

by the specification and drawings of figures 4-5.

Same rejection's reason for claims 11-17, since it is not clear how steps in claims 11-17

are performed chronologically with respect to the steps *"adjusting"* and *"selecting"* in claim 10.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1-6, 10-14, 18-22, 24-25 and 34-43 are rejected under 35 U.S.C. 102(e) as being

anticipated by **Peng et al.** (U.S.2004/0093421; hereinafter refer as 'Peng').

- In regard to claim 1, **Peng** discloses, *a method comprises*

selecting a channel access parameter based on a probability of collision between two or

more packets (for example see page 4, para [0060]).

- Regarding claims 2 and 11, **Peng** discloses the method of claim 1 further comprises

calculating a throughput loss parameter based on the probability of collision (for

example see page 1, para [0019]; page 2, para [0025]).

- In regard to claims 3 and 12, **Peng** further discloses the method comprises

collecting statistics of a packet time to provide an average packet time;

estimating a collision probability parameter; and

estimating a network load based on the average packet time and the collision probability

parameter (for example see page 1, para [0021]; pages 3-4, paras [0054-0056]).

- Regarding claims 4 and 13, **Peng** further discloses the method comprises

estimating the throughput loss parameter based on the network load (for example see

page 1, para [0019]; page 2, para [0025]).

- In regard to claim 5, **Peng** further discloses the method comprises

dynamically adjusting a parameter of a contention window based on the probability of

collision (for example see page 4, para [0060]; page 5, para [0071]).

- Regarding claims 6 and 14, **Peng** further discloses the method comprises

adjusting a backoff parameter based on the network load; and

adjusting a size of the contention window based on the adjusted backoff parameter (for

example see page 4, para [0060; page 5, para [0071]).

- In regard to claim 10, **Peng** discloses, *a method comprises*

dynamically adjusting a parameter of a contention window based on a probability of

collision between two or more packets (for example see page 4, para [0060]; page 5, para

[0071]); *and*

selecting a channel access parameter based on the adjusted parameter of the contention

window (for example see page 4, para [0060]; page 5, para [0071]).

- Regarding claim 18, **Peng** discloses *an apparatus* ('communication node'), *which*

comprises a channel access controller to select a channel access parameter based on a

dynamically adjusted parameter of a contention window ('mean for detecting, 'means for

calculating' and 'means for resetting'; for example see page 2, paras [0025-0026]; page 4, para

[0060]), *wherein the parameter of the contention window is adjustable based on a probability of*

collision between two or more packets transmitted from at least two mobile units (for example

see page 4, para [0060]; page 5, para [0071]).

- In regard to claims 19, 35 and 41, **Peng** further discloses the apparatus comprises

a calculator to calculate the probability of collisions based on an estimated throughput

loss parameter which based on the collisions ('mean for calculating'; for example see page 2,

paras [0025-0026]).

- Regarding claims 20 and 36, **Peng** further discloses the apparatus comprises

a statistic module to accumulate a packet time of a received packet to provide a packet

time parameter and to calculate a collision probability parameter ("mean for detecting', 'means

for calculating'; for example see page 2, paras [0025-0026]; page 4, paras [0056-60]).

- In regard to claims 21, 37 and 42, **Peng** further discloses,

wherein the calculator is able to estimate a network load based on the packet time

parameter and the collision probability parameter (for example see pages 3-4, paras [0054-

0056]) *and to estimate the throughput loss parameter based on the network load* (for example

see page 1, para [0019]; page 2, para [0025]; page 5, para [0071]).

- Regarding claims 22 and 43, **Peng** further discloses,

· *wherein channel access controller is able to adjust a backoff parameter based on the*

network load and to adjust a size of the contention window based on the adjusted backoff

parameter (for example see page 4, para [0060; page 5, para [0071]).

- In regard to claim 34, **Peng** discloses, *a wireless communication system* (for example

see page 1, para [0002]) *comprises*

one or more mobile unit to receive a channel access parameter ('communication node';

for example see page 2, para [0026]); *and*

an access point ('communication node') *comprises a channel access controller to select*

the channel access parameter based on dynamically adjusted parameter of a contention window

('mean for detecting, 'means for calculating' and 'means for resetting'; for example see page 2,

paras [0025-0026]; page 4, para [0060]) *wherein, the parameter is able to be adjusted based on*

probability of collisions between two or more packets transmitted from at least two mobile units

of the one or more mobile units (for example see page 4, para [0060]; page 5, para [0071]).

- Regarding claims 24 and 38, **Peng** further discloses,

wherein channel access controller is able to operate according to a carrier sense

multiple access with collision avoidance with exponential backoff module (for example see **Peng**:

page 3. para [0052]; page 5. para [0071]).

- Regarding claims 25 and 39, **Peng** further discloses,

wherein the channel access parameter is a time slot within the contention window (for

example see **Peng**: page 1, para [0007]).

- In regard to claim 40, **Peng** discloses, *an article* ('communication node') *comprising: a*

storage medium, having stored thereon instructions (wherein the *"storage medium"* is inherently

in the communication node for storing functions to perform as calculating, retrieving, resetting,

etc. as disclosed in page 2, paras [0025-0026]), *that when executed, result in:*

dynamically adjusting a parameter of a contention window based on probability of

collisions between two or more packets (for example see page 4, para [0060]; page 5, para

[0071]); *and*

selecting a channel access parameter based on the contention window (for example see

page 4, para [0060]; page 5, para [0071]).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

<u>Note:</u> The term "*able to*" is not positive limitation; therefore, the recited limitations following the term "*able to*" may not be considered the claimed limitation. It is suggested applicant changing into positive term.

9.   Claims 26-30 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Peng et al. (U.S.2004/0093421).

- Regarding claim 26, **Peng** discloses *an apparatus* ('communication node'), *which*

comprises a channel access controller to select a channel access parameter based on a

. dynamically adjusted parameter of a contention window ('mean for detecting, 'means for

calculating' and 'means for resetting'; for example see page 2, paras [0025-0026]; page 4, para

[0060]), *wherein the parameter of the contention window is adjustable based on a probability of*

collision between two or more packets transmitted from at least two mobile units (for example

see page 4, para [0060]; page 5, para [0071]). Though, **Peng** fails to explicitly disclose about the

"*omni-directional antenna*" for providing the transmission of channel access parameter to mobile

units; however, omni-directional antenna is well known in the art for providing non-directional

signal broadcasting within near field ranging versus directional antenna for providing gain in the

direction of oncoming traffic; and where the types of antenna are system engineering choices,

which depends from system to system.

Therefore, it would have been obvious to the person of ordinary skill in the art at the time

of the invention was made to use omni-directional antenna for less cost in installation and

maintenance.

- In regard to claim 27, **Peng** further discloses the apparatus comprises

a calculator to calculate the probability of collisions based on an estimated throughput

loss parameter which based on the collisions ('mean for calculating'; for example see page 2,

paras [0025-0026]).

- Regarding claim 28, **Peng** further discloses the apparatus comprises

a statistic module to accumulate a packet time of a received packet to provide a packet

time parameter ("mean for detecting', 'means for calculating'; for example see page 2, paras

[0025-0026]; page 4, paras [0056-60]).

- In regard to claim 29, **Peng** further discloses,

wherein the calculator is able to estimate a network load based on the packet time

parameter and the collision probability parameter (for example see pages 3-4, paras [0054-

0056]) *and to estimate the throughput loss parameter based on the network load* (for example

see page 1, para [0019]; page 2, para [0025]; page 5, para [0071]).

- Regarding claim 30, **Peng** further discloses,

wherein channel access controller is able to adjust a backoff parameter based on the

network load and to adjust a size of the contention window based on the adjusted backoff

parameter (for example see page 4, para [0060; page 5, para [0071]).

- In regard to claim 32, **Peng** further discloses,

wherein channel access controller is able to operate according to a carrier sense

multiple access with collision avoidance with exponential backoff module (for example see **Peng**:

page 3. para [0052]; page 5, para [0071]).

- Regarding claim 33, **Peng** further discloses,

wherein the channel access parameter is a time slot within the contention window (for

example see **Peng**: page 1, para [0007]).

10.   Claims 7, 9, 15, 17, 23, 31 and 44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Peng et al.** (U.S.2004/0093421) in view of **Guo et al.** (U.S.6,937,591;

hereinafter refer as '**Guo**').

- In regard to claims 7, 15 and 44, **Peng** discloses all the subject matter of the claimed

invention as discussed in part 7 of this office action above for method and system to improve

throughput on wireless LAN; except for *dynamically adjusting a parameter of a contention*

window based on equilibrium between packet loss parameters. However, such implementation is

known in the art.

For example, **Guo** discloses the system and method for providing adaptive updates access

parameters to ensure fairness in wireless time slotted network (for example see Abstract; col. 2,

lines 1-43); and *dynamically adjusting a parameter of a contention window based on equilibrium*

between packet loss parameters (for example see fig. 5; col. 11, line 30 through col. 12, line 3).

Thus it would have been obvious to the person of ordinary skill in the art at the time of

the invention was made to implement the adjusting of the contention window's parameter based

on equilibrium between packet loss parameters as taught by **Guo** in **Peng's** system, with the

motivation being to improve the fairness on the distributed basis for wireless time slotted

network as disclosed in **Guo**: Abstract; col. 2, lines 20-22.

- Regarding claims 9 and 17, the combination **Peng** of and **Guo** further discloses

adjusting a backoff parameter based on the network load; and

adjusting a size of the contention window based on the adjusted backoff parameter (for

example see **Peng**: page 4, para [0060; page 5, para [0071]).

- In regard to claims 23 and 31, **Peng** discloses all the subject matter of the claimed

invention as discussed in part 7 of this office action above for method and system to improve

throughput on wireless LAN; except for *dynamically adjusting a parameter of a contention*

window based on equilibrium between packet loss parameters. However, such implementation is

known in the art.

For example, **Guo** discloses the system and method for providing adaptive updates access

parameters to ensure fairness in wireless time slotted network (for example see Abstract; col. 2,

lines 1-43); and *dynamically adjusting a parameter of a contention window based on equilibrium*

between packet loss parameters (for example see fig. 5; col. 11, line 30 through col. 12, line 3).

Thus it would have been obvious to the person of ordinary skill in the art at the time of

the invention was made to implement the adjusting of the contention window's parameter based

on equilibrium between packet loss parameters as taught by **Guo** in **Peng's** system, with the

motivation being to improve the fairness on the distributed basis for wireless time slotted

network as disclosed in **Guo**: Abstract; col. 2, lines 20-22.

Allowable Subject Matter

11.   Claims 8 and 16 are objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten or amended to overcome the objection and rejection(s) under 35 U.S.C.

112, second paragraph, set forth in this Office action, and included all of the limitations of the

base claim and any intervening claims.

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

      Young et al. (U.S.6,965,942), **Ho et al.** (U.S.2002/0110085) and **Sugar et al.**

(U.S.2003/0081628) are all cited to show devices and methods for improving the users' access in

the wireless communication architectures, which are considered pertinent to the claimed

invention.

      Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tri H. Phan, whose telephone number is (571) 272-3074. The

examiner can normally be reached on M-F (8:00-4:30).

      If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi H. Pham can be reached on (571) 272-3179.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300

Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street,

Alexandria, VA 22314.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 Customer Service Office, whose telephone

number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tri H. Phan
May 4, 2007

CHI PHAM
SUPERVISORY PATENT EXAMINER 5/7/07